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ABSTRACT

Relationships are examined among linking functions and the linking agent role in the context of factors that determine the function and affect the role. The historical context in which educational dissemination has evolved is described, and three major clusters of dissemination concepts that have been identified and analyzed since 1966 are examined: the diffusion of new ideas and practices; the structure and function of dissemination programs; and the multiple contexts in which dissemination occurs. Analysis of past and present experience in dissemination programs that employ linking agents indicates that the roles and functions of linking agents are differentiated along two dimensions. One dimension involves the intra-organizational versus extra-organizational locus of linkage activity. The other dimension involves the linking agent's "entitlement" to act on behalf of the organization in different ways. The concept of "entitlement" accounts for marked differences in the approach of linking agents to clients and the nature of the ensuing exchange. The concept is an amalgam of expectation, legitimation, auspices, functions, and an additional factor that is best described as the linking agent's presentation of self. Examples of three modal roles that result from three "entitlements" are described (resource finder, process helper, solution giver), and the relationship of these roles with selected linking functions is discussed. Considered among the implications for training and support systems are these: the present lack of strict definition of linking roles and functions; the consequent need for flexibility in training and performance; and the shortage of qualified trainers. A training approach that accounts for these implications is suggested. (Author)

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# Educational Knowledge Dissemination and Utilization

## OCCASIONAL PAPER SERIES

## Factors Determining Roles and Functions Of Educational Linking Agents

January 1978

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# FACTORS DETERMINING ROLES AND FUNCTIONS OF EDUCATIONAL LINKING AGENTS WITH IMPLICATIONS FOR TRAINING AND SUPPORT SYSTEMS

Matilda Butler

Far West Laboratory for Educational
Research and Development

William Paisley

Institute for Communication Research
Stanford University

January 1978

FAR WEST LABORATORY
FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

1855 FOLSOM STREET • SAN FRANCISCO, CALIFORNIA 94103 • (415) 565-3000

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# FOREWORD

This Occasional Paper Series is the result of a collaborative effort among the National Institute of Education, the Far West Laboratory for Educational Research and Development, and students and practitioners of educational dissemination. Each of the papers in the series will be related to the dissemination and utilization of educational information and will reflect the continuing interest and activities of both NIE and Far West Laboratory in this area of educational research and practice. In some instances, the paper will be prepared by Far West Laboratory research staff: in others, the Laboratory will commission papers by practitioners and scholars in the field. Many of the papers will provide the basis for, or will be the result of, a series of dissemination conferences involving educational dissemination sponsors, dissemination project managers and staff, and school practitioners and scholars concerned with educational improvement based on the results of educational research and development.

The major goal of the series is to define areas of agreement and disagreement within the research, development, and practice communities on those factors which are most important in supporting the process of educational improvement. Among the factors to be considered are activities of staff involved in dissemination, the organization and operation of dissemination programs, and the organization and operation of school systems. The papers also will examine basic aspects of dissemination such as the spread and exchange of information, the use of information in program planning, and the provision of training and consultation to help implement program improvements.

One of NIE's goals is to help construct support services for schools and school systems which are attempting to improve educational practice. The papers in this series are particularly related to two of the many Institute efforts directed toward this goal: the interpretation of research for practitioners and the training of linking agents.

The papers and the process used in their preparation are related to the NIE knowledge analysis and interpretation project which encourages the analysis, synthesis, and interpretation of research findings for application in educational practice. Although there is no consensus on how this process of analysis/synthesis/interpretation should be carried out, we assume that it is not solely an intellectual process but includes an emphasis on agreement among persons with different personal and organizational commitments.

In addition, we expect the papers to contribute to the conceptual base for the NIE Linkage Training Service, which is intended to collect, organize and convey information about linker training materials and human resources to those involved in linkage programs. We expect the consultation and training experience of the Linkage Training Service to keep the papers tied to reality, and we expect the ideas in the papers to help in describing and making sense of the experience of linking agents and agencies.

The papers are the continuation of an interpretation activity which began in June, 1975 with Dr. Philip Piele's review of the literature on linking functions and linker training. That review and the resulting discussions highlighted a number of problems in the available literature: (a) the important system variables which influence change and improvement in schools are not seen as related to the functions of linking agents; (b) there is little attention to the nature and quality of the information to be conveyed to practitioners; (c) linking tends to be equated with change and with adoption of innovations rather than with support to program improvement efforts; (d) the role of the school administrator in the linking process is often ignored; (e) the functions of information provision, technical assistance provision, and helping the school system build its capacity to assess and improve education are usually seen as separate and unintegrated roles; and, finally (f) there is relatively little research on the functions of the linking agent. Based on that review, it appeared that an understanding of the educational improvement process required attention to the impact of the school administrator and the school as an organization as well as to the role of the linking agent. Subsequent activities have attempted to take such a balanced perspective.

In 1977, the University Council for Education Administration published a set of papers entitled Linking Processes in Educational Improvement. That book drew upon research and experience to look more carefully at processes of educational improvement from the perspectives of the types of knowledge available, the functions of the linking agent, and the functions of the administrator. This series of papers is the result of a further effort to identify and understand the ways in which different organizations and people relate in the complex process of encouraging educational improvement.

The papers in the current Occasional Paper Series are expected to examine the most recent research and experience in order to arrive at a series of statements which can provide guidance for both managers and policy makers involved in educational dissemination. In conducting such examinations and making such statements, we are sensitive to competing needs: to simplify a very complex field, and to avoid simplification which is not a useful representation of reality. Although we do not expect these papers to provide a final statement on any of the issues addressed, we hope that they will move us a step closer to an understanding of the crucial and complex problems of supporting individuals and organizations in their efforts to improve educational practice.

Spencer A. Ward

Consumer Information Branch
School Practice and Service Division
Dissemination Resources Group

National Institute of Education

Washington, D.C.
January, 1978

# PREFACE

This report is one of several efforts to illuminate and broaden our understanding of both the present and potential nature of educational linking agents, their roles, functions, and training needs. The long-range goal is to describe a larger model or pattern of linking functions which appears most crucial for improvement of dissemination programs. Among the efforts toward this goal will be consideration of alternative frameworks for descriptions of linking agent functions and roles, provisions for developing definitions of relevant terminology, and a tentative framework for developing cost comparisons among the various conceptualizations described.

In this paper, Matilda Butler and William Paisley have provided a broad, historically grounded perspective of the context in which educational dissemination has evolved and have explored relationships among linking functions and roles which developed from that context. In addition, they have considered two dimensions along which linking agent roles and functions are strongly differentiated. They also have examined implications of the context, the relationships among roles and functions, and the dimensions of differentiation for linkage training and support systems.

We believe that the perspective they have presented will serve as a firm base on which subsequent efforts can be built. That this perspective has been informed both by their previous research in educational dissemination and by their research in the problems of communication and dissemination in other fields has provided us with a breadth of view which is often difficult to achieve in a newly emerging field.

The process of developing this report has included participation in several meetings with scholars and practitioners in the field as well as analysis of published documentation. Follow-up activities related to this paper and other papers in this series will include conferences and forums sponsored by Far West Laboratory for the purpose of discussion and critique of the reports and identification of additional aspects of educational dissemination which should receive special attention. We welcome and encourage comments and critiques from readers and especially solicit suggestions for the improvement of subsequent efforts.

Paul D. Hood/Carolyn S. Cates

Editors

## ABSTRACT

FACTORS DETERMINING ROLES AND FUNCTIONS OF EDUCATIONAL LINKING AGENTS WITH IMPLICATIONS FOR TRAINING AND SUPPORT SYSTEMS

Relationships are examined among linking functions and the linking agent role in the context of factors that determine the functions and affect the role. The historical context in which educational dissemination has evolved is described, and three major clusters of dissemination concepts that have been identified and analyzed since 1966 are examined: (1) the diffusion of new ideas and practices; (2) the structure and function of dissemination programs; and (3) the multiple contexts in which dissemination occurs.

Analysis of past and present experience in dissemination programs that employ linking agents indicates that the roles and functions of linking agents are differentiated along two dimensions. One dimension involves the intra-organizational versus extra-organizational locus of linkage activity. The other dimension involves the linking agent's "entitlement" to act on behalf of the organization in different ways. The concept of "entitlement" accounts for marked differences in the approach of linking agents to clients and the nature of the ensuing exchange. The concept is an amalgam of expectation, legitimation, auspices, functions, and an additional factor that is best described as the linking agent's presentation of self. Examples of three modal roles which result from three "entitlements" are described (resource finder, process helper, solution giver), and the relationship of these roles with selected linking functions is discussed.

Considered among the implications for training and support systems are these: (1) the present lack of strict definition of linking roles and functions; (2) the consequent need for flexibility in training and performance; and (3) the shortage of qualified trainers. A training approach which accounts for these implications is suggested.

Matilda Butler

William Paisley

# I. INTRODUCTION

In a recent project for the National Institute of Education (Butler, Paisley, et al., 1975), we catalogued more than 40 "models" of educational linkage, contrasted on these dimensions:

| | |
|---|---|
| LEVEL: | National, state, regional, local. |
| BASE: | Government-centralized, government-decentralized, professional association, university, private-for-profit, private-non-profit, consortium. |
| SERVICE: | Technical assistance, instructional materials, continuing education, information. |
| FOCUS: | General, subject-specific, product-specific, audience-specific. |
| INTERFACE: | Print, media, human. |
| INITIATIVE: | Client (demand services), staff (scheduled services). |

The majority of these linkage models involve direct contact between staff and clients. As a point of departure for this paper, let's call such staff "linking agents" and consider the feasible limits of such a definition. How many of the following groups, all found in one or more linkage models, should we regard as linking agents for purposes of training, support, design of new systems, or national dissemination policy in education?

1. ROLE: user services specialist in clearinghouse or information center.
   FUNCTIONS: receive and interpret user requests, locate resources, conduct computer searches, prepare responses to requests, transmit responses to users;

2. ROLE: staff member in teacher center.
   FUNCTIONS: work with individual teachers and groups of teachers to define classroom problems and develop new approaches to teaching using primarily local resources, prepare exemplary instructional materials and classroom learning centers, conduct workshops on topics outside the usual scope of inservice training;

3. ROLE: professor of education.
   FUNCTIONS: provide college-based inservice training;

4. ROLE: technical assistance specialist in regional laboratory.
   FUNCTIONS: respond to requests from product adopters to provide assistance in product installation, user training, evaluation of product effectiveness, etc.;

5. ROLE: staff member in regional office of U.S. Office of Education.
   FUNCTIONS (among others): answer educators' questions about USOE programs, supply documentation on programs, provide some technical assistance in the preparation of proposals to USOE;

6. ROLE: organizational development specialist in private (for-profit- or non-profit) company.
   FUNCTIONS: under contract to school district, conduct assessment of organizational process and performance, assist in clarifying organizational goals, identify organizational resources and constraints, provide formal and informal training to members of the organization;

7. ROLE: curriculum specialist/consultant in state department of education.
   FUNCTIONS (among others): explain to individuals and committees in school districts the applicable state regulations and guidelines, assist in diagnosing local needs and matching alternative instructional materials or approaches to those needs, provide information on sources of supplementary funding for subject area;

8. ROLE: staff member of the Product Inquiry Service, Educational Products Information Exchange.
   FUNCTIONS: respond to product-related questions from school districts and other institutions subscribing to the EPIE program, amplify or interpret information provided in the EPIE publication, Educational Product Report;

9. ROLE: presession presenter at the annual conventions of the American Educational Research Association, American Psychological Association, etc.
   FUNCTIONS: conduct brief intensive workshop/tutorial/training sessions on topics such as educational evaluation.

10. ROLE: staff member in large-city school district research office.
    FUNCTIONS (among others): assist schools in the district to maintain program effectiveness through assessment and diagnosis of student needs, inform schools of new materials and research findings that are relevant to needs.

These are only a sampling of the direct-contact roles encompassed by a broad definition of linking agentry. In addition, several university-based extension programs provide similar services using various forms of media--television seminars, telephone conference lines, etc. At least one state department of education produces and broadcasts television programs specifically for teachers and school administrators in the state.

We have deliberately omitted from this list the set of external field agent roles employed in federally-sponsored programs such as the USOE National Diffusion Network, the NIE State Dissemination Capacity Building Program, and the NIE R&D Utilization Program. Despite differences among them, as discussed below, the ten aforementioned roles provide the core roles with which a definition of linking agentry should begin.

In our 1975 report to NIE, we defined educational linkage as a process that:

1. Brings new educational practices, especially those resulting from systematic research and development, to the attention of educators;
2. Provides educators with technical assistance in the evaluation, trial, adoption, and maintenance of new practices;
3. Provides educators with new competencies (as required by new practices) through some form of continuing education;
4. Provides a feedback loop from educators to researchers, developers, and policymakers.

These defining criteria of linkage help to narrow the definition of linking agentry somewhat. There is a new-practice focus in three of the criteria that would cause us to exclude the organizational development specialist (role 6) from the set of linking agent roles. The organizational development specialist would instead be included among the professional roles that provide the schools with specialized services: architect, economist, transportation specialist, data processing specialist, etc.

Should the criteria for a definition of linkage be regarded as conjunctive or disjunctive? That is, should linkage be defined as criteria 1 and 2 and 3 and 4 (as listed in our 1975 report to NIE) or as criteria 1 or 2 or 3 or 4? If the former, then a corollary question arises: how many of these criteria, translated into functions, should be evident in the work of an individual linking

agent? Do inservice trainers qualify as linking agents under criterion 3 alone? Do user services specialists in clearinghouses qualify as linking agents under criterion 1 alone?

For purposes of training, support, design of new systems, and national dissemination policy, we are concerned both with linking agentry as a new professional role in education and with linking functions that may be performed by persons in other professional roles. At the present time, the role of linking agent is occupied by persons whose preservice training was in other fields of education. A second characteristic of linking agents at the present time is that they are employed by organizations other than the client organizations. From the client's perspective, they are external linking agents. Persons in other professional roles perform linking functions for their own organizations. That is, without occupying the role of linking agent, they perform internal linking functions. Over time, the distinction between a cadre of external linking agents and other persons who perform internal linking functions will be blurred as educational organizations employ linking agents for the benefit of their own personnel. The internal linking agent, symbolizing an organization's capacity for self-directed change, is now found, for example, in large business and industrial corporations. (Small businesses are served by external linking agents supported by the U.S. Department of Commerce through counterpart state agencies.) We can expect school districts, led by those in large cities, to rely on internal linking agents for all but the most specialized linking functions in the future.

Although they represent the same domain of work, linking functions and the linking agent role are distinct from each other. A linking agent is not only a person who performs more linking functions than do other people. Formal

properties of the linking agent role, such as its status, legitimation, persistence, value anchorage, and self-conception, are defined not only by functions performed, but also by the typical backgrounds of persons who occupy the role, their prerogatives and responsibilities vis-a-vis other educational professionals, and the standards they establish both for entry into the profession and for adequate performance within it.

The rest of this paper explores relationships among linking functions and the linking agent role in the context of numerous factors that determine the functions and effect the role. We intend our comments to be relevant to the provision of training and support systems for linking agents, and we hope they may be relevant to the design of new systems and to national dissemination policy as well.

## II. THE HISTORICAL CONTEXT OF LINKING ROLES AND FUNCTIONS

It is significant that we are concerned with linking agents in the United States circa 1980, not with linking agents in another country or in another period of history. It is also significant that the linking agents with whom we are concerned serve the field of education, not business or medicine or social services. The purpose of the following brief section is not to tell the reader something that he or she does not already know, but to characterize the historical context in a way that the reader can agree or disagree with. Implicit in the historical context in which linking roles and functions have developed are indications of the direction of the future evolution of education in the United States, and on that evolution depends the further development of the linking agent role.

For more than a century, the American experiment in universal education has been characterized by adaptiveness. New theories and practices of instruction have supplanted and supplemented each other in the schools at a rate that has astonished educators in more traditional societies. With a few exceptions, the European educational systems that inseminated the American system have not kept up with their offspring.

As early as 1967, when the forerunner of the U.S. Office of Education was established, Henry Barnard (founder of the American Journal of Education and the first U.S. Commissioner of Education) and his colleagues were creating a "science of education" to monitor the progress of American education and codify the best existing practices. Toward the end of the 19th century, the potential for improving American schools through research (or at least through scholarship) and through demonstration of new practices was an incentive shared by psychologists

such as William James and G. Stanley Hall as well as by educational scholars such as John Dewey and Ellwood Cubberley. John Dewey's laboratory school at the University of Chicago was founded in the belief that psychological principles of instruction could be translated into practice. For the first three decades of the 20th century, the network of university-based laboratory schools incubated practices that the public schools were not yet ready to adopt.

However, by the 1930's, impressive changes could be seen in the public schools as well:

> ...wholly new curriculum, with an elective system that spanned dozens of school subjects; a range of instructional methods that embraced laboratories, field trips, visual aids, school libraries; consolidated high schools offering vocational as well as academic curriculums; vocational guidance programs and diagnostic services directed by school psychologists; school buildings designed for educational efficiency and built to high standards; and enormous advances in the preparation, style of work, and salaries of teachers. (Office of Education, 1969, p. 41)

The concept of "instructional technology" was born during the 1940's when the needs of a wartime economy created an urgent demand for high levels of skills and knowledge among civilian and military personnel whose prior education had not prepared them to fabricate or fight a high-technology war. With instructors in short supply, it was found that audiovisual materials and the first generation of "teaching machines" could instruct and drill students quite effectively in a variety of knowledge and skill areas.

World War II also provided American society with a new paradigm for research and development. With the Manhattan Project and other "maximum effort" projects of the wartime Office of Scientific Research and Development, R&D outgrew the contexts, procedures, norms, and expectations of prewar "little science" (Price, 1963). Teams of researchers and developers, dispersed across the United States in specialized laboratories and plants, worked on separate tasks within a common

blueprint and schedule. In the most important conceptual departure from "little science," new knowledge was regarded as a product which could be scheduled to be ready when needed in each phase of the project.

Team research entered nonmilitary and nonindustrial fields after World War II. High-energy physics, polymer chemistry, biomedical research, and eventually, by the mid-1960's, educational research provided striking examples of the new R&D paradigm's productivity and adaptability.

Postwar confidence in the ability of American "know-how" to solve social as well as technological problems led many policymakers, researchers, and developers to overlook the limited roles that their interventions and products could play--especially in fields such as public health and education, which are characterized by organizational complexity, multilevel decision-making, and service responsibilities involving the majority of the nation's households. Such fields can welcome and embrace scores of innovations without appearing, overall, to have changed significantly. Because of traditionally weak lateral communication in these fields, millions of patients or students in some regions of the country can benefit from an innovation that is largely untried in other regions of the country.

In education, the gap between expectation and outcome was enlarged by the many compensatory functions that were assigned to the schools in a national commitment to provide equal access to the "Great Society" for all citizens, regardless of previous disadvantage. The landmark study of equal educational opportunity (Coleman et al., 1966) was rejected by some policymakers and leaders of disadvantaged groups because it implied that education alone could not compensate for centuries of injustice.

Hard lessons of the 1960's had led to reduced expectations for education in the 1970's. Social programs that more directly affect jobs, income, living conditions, electoral power, legal rights, etc., have "taken the heat off" education as an all-purpose intervention. Young people graduating into a stagnant economy have begun to ask, "Education for what?"

Across the decades of change, however, education continues to be America's most ecumenical faith. Critics of the schools rarely doubt the potential benefits or importance of education. Some of the most ardent believers in education are educators who have themselves risen above limitations of social or economic disadvantage.

A tough-mindedness toward educational R&D products, which were oversold at a time when education itself was oversold, should not be mistaken for apostasy. The coming decade may bring fewer fads in educational practice, but it may bring more fundamental change in education through an alignment of expectations with outcomes among researchers, developers, and their increasingly sophisticated counterparts in the schools.

Such an alignment can be achieved only through communication. As it happens, a remarkable communication system, larger and more complex than those serving other professions, has been growing in the field of education.

At the beginning of the 20th century, some elements of the educational communication system were already in place. Professional associations, such as the National Education Association, were convening conferences and publishing journals and yearbooks. The U.S. Bureau of Education (later the U.S. Office of Education) kept educators abreast of the field's progress through the reports of its Division of Statistics. State departments of education, large-city school systems, and teachers' colleges also participated in the exchange of information on educational demography, research findings, and new practices.

Laboratory schools established at universities in the first three decades of the 20th century also must be regarded as elements of the educational communication system. Most laboratory schools were open facilities where visitors were welcome to observe and discuss the principles and practices being tested.

Universities were instrumental in establishing another major and enduring element of the educational communication system. In 1942 Columbia University established the first school study council as a consortium in which Columbia shared its resources with 28 metropolitan New York school districts. At the present time there are more than 80 school study councils, ranging from one nationwide consortium (the Associated Public School System) to many geographically bounded consortia (e.g., the Western New York School Study Council). Some consortia are now recognized as important producers and testers of new educational practices; best known among these is the Educational Research and Development Council of the Twin Cities Metropolitan Area, organized by the University of Minnesota with the cooperation of 44 school districts. Other consortia have settled into more inactive and formal relationships between universities and schools, much as laboratory schools during the 1930's were settling into their final role as conventional private schools serving university communities.

The initiative for developing an educational communication system has shifted gradually but decisively to the federal government in the two decades since the first dissemination title was drafted into educational legislation in 1958. It is interesting to note the scope of the federal government's first educational authority as described in Title VII-B of the National Defense Education Act of 1958:

> [The Commissioner of Education is authorized to] disseminate information concerning new educational media, including the results of research and experimentation under [Part A of this

> title] to state and local education agencies, for use in their public elementary and secondary schools, and to institutions of higher education [by entering into contracts for] (1) studies and surveys to determine the need for increased or improved utilization of [instructional media]; (2) catalogs, reviews, bibliographies, abstracts, analyses of research and experimentation, and such other materials as are generally useful in the encouragement and more effective use of [instructional media]; (3) [providing upon request] advice, counsel, technical assistance and demonstrations to state or local educational agencies and institutions of higher education undertaking to utilize such media.

That is, the federal government empowered itself, at least with respect to new educational media, to contract for (1) needs assessment and related problem-analysis surveys; (2) a complete range of awareness and information analysis products; and (3) (upon request) technical assistance and demonstrations to potential adopters at all educational levels. The vigor with which the federal government and its contractors launched into these activities is indicated by the following examples of titles of several Title VII-B projects conducted around 1962:

> "Regional leadership conference to explore ways and means of disseminating information concerning new education media"
>
> "A plan for the systematic and continual identification of schools in the U.S. making significant use of newer media"
>
> "Campus school to a research and dissemination center"
>
> "Sources of information on educational media"
>
> "A survey of the kinds of dissemination activities that hold the greatest promise for improving the use of new educational media in the public schools and institutions of higher education in New York State"
>
> "Planning and dissemination conference on novel strategies and tactics for field studies of new educational media demonstrations"
>
> "Five publications for the dissemination of information about the new educational media"
>
> "An operating test of a pilot educational media research information center"

"Educational media research abstracting"

"Demonstration of the dissemination of information on new educational media by teacher demonstration teams"

"Traveling seminar and conference for the implementation of educational innovations"

"Great cities research council educational communications project"

The relatively overt purpose of the Office of Education was to establish a general educational communication system with the special system-building opportunities provided by Title VII-B. Three institutions (Columbia University, National Education Association, and Western Reserve University) were funded to prepare elements of the Educational Resources Information Center (ERIC) system. One of the first educational R&D centers (Pittsburgh) was funded by Title VII-B, as was a plan (developed at Pennsylvania State University) for the network of regional educational laboratories. Although its ten-year authority expired in 1968, Title VII-B projects continue to guide national dissemination policy in education.

The second major stream of federal initiative in planning and establishing the educational communication system began with Title IV of the Elementary and Secondary Education Act of 1965. Title IV is best known as the amended continuation of the Cooperative Research Act of 1954, but its dissemination authority was introduced in 1965. Title IV and Title II-B (library and information science research) enabled the Office of Education to establish a Division of Information Technology and Dissemination (DITD) in its Bureau of Research. During the late 1960's and early 1970's DITD, the first central office for educational dissemination in the federal government, contracted for the operation of the ERIC system (university-based ERIC clearinghouses and industry-based microfilming and report-

reproduction services), sponsored an innovative program of information analysis and targeted communication (PREP, or Putting Research into Educational Practice), initiated a number of system studies (e.g., "Developing a Sensing Network for Information Needs in Education," Paisley et al., 1972), and (in Oregon, South Carolina, and Utah) supported the test implementation of educational dissemination programs designed around cadres of "educational extension agents." With the transfer of its programs to the National Institute of Education in 1972, DITD (also known transitionally as the National Center for Educational Communications) ceased to exist; its successor at NIE, the Office of Dissemination and Resources, continues to manage ERIC while seeding and sponsoring an enlarging network of programs based on the extension concept.

State, intermediate, and local education agencies have not been left behind by the rapid growth of federal dissemination programs. At the risk of oversimplifying, these three levels of educational authority have historically played roles emphasizing regulation, service, and operation, respectively. Thus, it is not surprising that intermediate agencies, such as Boards of Cooperative Educational Services (BOCES), were the first to provide information retrieval services and information analysis products for their multidistrict clienteles. State education agencies have experimented with new organizational arrangements that allow them to provide dissemination services in addition to their statutory regulation activities. Some states have been able to combine service and regulation in the same cadre of consultants; other states keep the service and regulation functions as separate as possible.

Few local education agencies have dissemination services that follow the model of information retrieval, analysis, synthesis, and repackaging of information products. More common at the district level are inservice training opportunities, instructional materials centers, and teacher centers.

Teacher centers are the most provocative dissemination invention of the past decade. Located both inside and outside local education agencies (with interesting differences in services relative to auspices), most teacher centers in the United States pattern their resources and service philosophy after English counterparts that were established in support of the infant schools movement in England. There is, of course, a range of teacher center philosophies across the United States. Teacher centers in New England and in metropolitan areas are more faithful to the English model. In states like Texas, with a large rural population and a well-developed network of intermediate education agencies (Regional Education Service Centers in Texas), teacher centers seem to succeed best at the intermediate rather than local level, within a consortium arrangement involving the school districts, the intermediate agency, and a college or university located in the region.

To the extent that jurisdictional questions can be resolved, there is a tendency for state, intermediate, and local dissemination projects to merge and to grow beyond the limited purposes for which they were established (e.g., information retrieval, technical assistance). Multipurpose centers are beginning to provide information retrieval and continuing education and technical assistance and instructional materials close to the schools.

A belief that the volume of products from research and development programs have outstripped the capacity of educators to learn about, evaluate, and utilize R&D products has led to a greater variety of dissemination and technical assistance efforts than we have mentioned thus far. Foundations such as Kettering and Ford have sponsored publication programs and local consortium projects; professional associations such as the American Educational Research Association and the American Psychological Association have instituted training workshops that

take place at the time of their annual conventions; independent nonprofit organizations, like the Educational Products Information Exchange, have increased the flow of neutral information on R&D products.

There are, in addition, federal dissemination programs that differ from the general federal programs described above in that their responsibilities are circumscribed by subject matter and clientele. Within the Office of Education, bureaus for the education of the handicapped and for vocational education sponsor dissemination activities in their respective areas. As of 1974-1975, when Butler, Paisley, et al. (1975) complied listings of dissemination activities nationwide, there were more than 50 state and regional centers serving special educators (the Special Education Instructional Materials Centers, or SEIMC's) and vocational educators (the Research Coordinating Units, or RCU's).

Figure 1 summarizes what we believe are some of the important events and emphases that created the broad historical context of educational dissemination. The timeline of Figure 2 is much shorter; Figure 2 shows some of the changes in the configuration of educational dissemination programs that have come about only in eight years. If Figure 2 had shown the earlier eight-year period from 1961-1969, the configuration would have included only the school study councils, ad hoc dissemination projects under NDEA VII-B, and small-scale activities involving foundations, professional associations, schools of education, etc.

In some cases, dissemination concepts that the programs helped to refine have been more important than the dissemination programs themselves--some of which were short-lived and most of which were less effective than had been originally hoped. Three major clusters of concepts that have been identified and analyzed in the past ten years are:

FIGURE 1. THE HISTORICAL CONTEXT: A SAMPLING OF EVENTS AND EMPHASES THAT HAVE AFFECTED EDUCATIONAL DISSEMINATION.

*EVENTS*

American Journal of Education

U.S. Department (Office) of Education

National Education Association conventions and publications

Laboratory schools

Large-scale professional publishing

New divisions of NEA and independent associations: conventions and publications

School study councils

Military R&D model adapted to educational research

First educational dissemination authorization in Federal legislation: National Defense Education Act Title VII-B

New science curricula sponsored by NSF, widely adopted

Research and Development Centers

Vocational Research Coordinating Units

Educational Resources Information Center and clearinghouses

Regional Education Laboratories

Special Education Instructional Materials Centers

Local supplementary (PACE) centers and projects

Regional information services: RISE, MERRIMACK, etc.

Information packaging experiments: PREP, ALERT, etc.

Educational Products Information Exchange: product review

Teacher centers

Pilot State extension experiment

National Diffusion Network, State Capacity-Building, R&D Utilization Programs

*EMPHASES*

A "science of education"

School statistics

Codification of best existing practices

Professionalization of teaching, administration

Education as tool of assimilation

Standardized testing

Universal high school education

Technological solutions to educational problems

More research findings and sound practices known than disseminated

Equality of educational opportunity

Teaching the whole child

Individualization of instruction

Flexible space and staff arrangements

Universal post-secondary education

Lifelong learning

Career education

Validity of local innovation

Declining enrollment and eroding revenue base

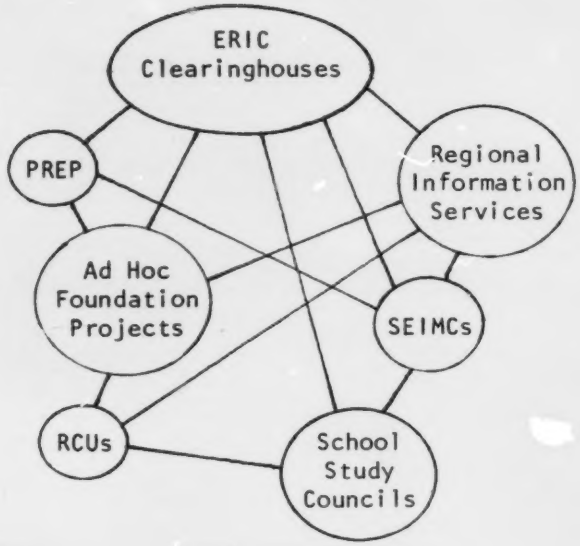
Early childhood education

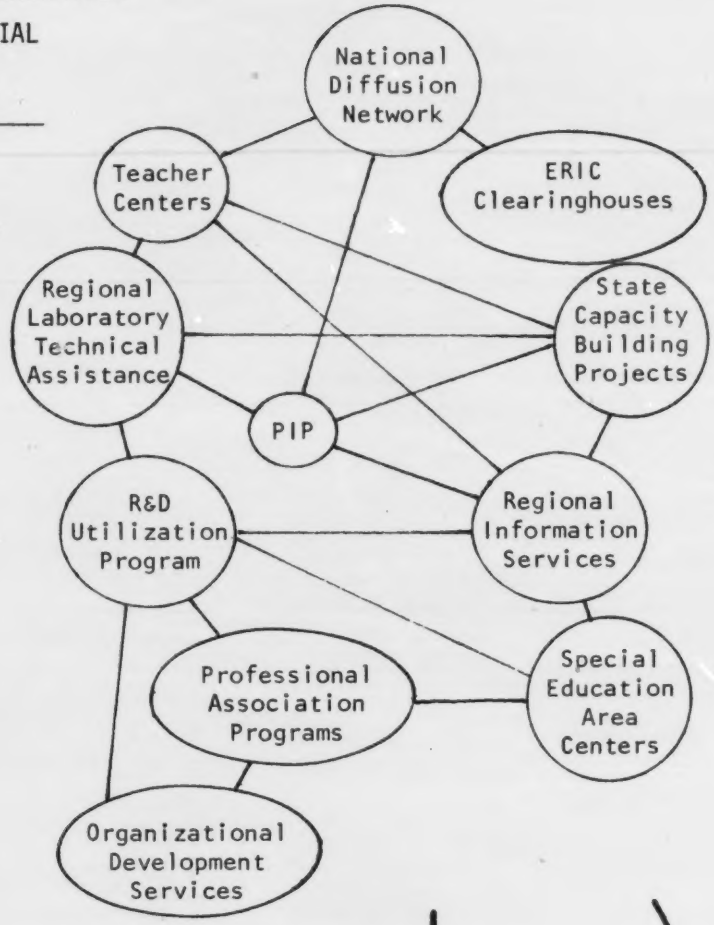
Appropriate technology: small is beautiful

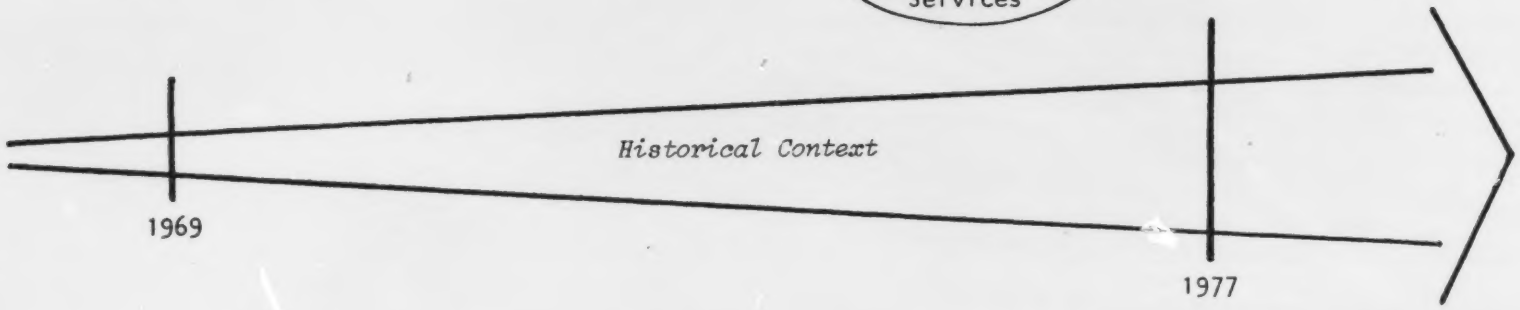
Systematized planning, budgeting, evaluating

Competency-based student progress and graduation criteria

FIGURE 2. THE CHANGING CONFIGURATION OF EDUCATIONAL DISSEMINATION PROGRAMS, PROJECTS, CENTERS AND SERVICES (PARTIAL DEPICTION OF ACTIVITIES AND INTERCONNECTIONS).



1. The diffusion of new ideas and practices. From its origins in anthropology and rural sociology, diffusion theory reached the field of education around 1965 (cf. Carlson, 1965). Main elements of this well-known theory include: (a) a time-based adoption process incorporating a knowledge function, a persuasion function, a decision function, and a confirmation function; (b) attributes of innovations that facilitate or impede their diffusion; (c) attributes of innovators, early adopters, and later adopters; (d) the concept of opinion leadership and a distinction between the innovator and opinion-leader roles; (e) multistep flow of informational and persuasive communication; (f) attributes of communication channels that mediate their effectiveness for knowledge, persuasion, decision, and confirmation; (g) a taxonomy of decisions ranging from private individual decisions to public collective decisions; (h) organizational factors that affect decision-making; and (i) the later consequences of adoption decisions.

In this theory, as best formulated by Rogers with Shoemaker (1971), communication events intervene to move individuals and groups from one phase of the adoption process to the next, as well as to consolidate the effects of previous phases. In the field of education, the process orientation of diffusion theory implies that the role of dissemination is to inform educators of alternatives, to assist them in assessing current practice against alternatives, to persuade them of the superiority either of current practice or of some alternative, to equip them for decision-making, to reinforce a decision once it is made, and to guide a practice new to a locale from experimental to operational status.

2. The structure and function of dissemination programs. NDEA VII-B was a conceptual watershed for educational dissemination. Some projects supported by this title in the early 1960's emphasized the organization and distribution of print resources; ERIC was the direct outgrowth of one set of these projects.

Other VII-B projects emphasized person-to-person dissemination through regional conferences and workshops. In the absence of evaluation data concerning the relative effectiveness of print versus person-to-person dissemination, federal dissemination programs favored the simpler and less expensive approach--print dissemination--from 1965 into the 1970's. However, dissemination planners could not ignore the implications of McLuhan's dictum, "the medium is the message" (McLuhan's seminal book, Understanding Media (1964), was written as his report in an NDEA VII-A project of the same name). Properties of the print communication system elicit different reactions from educators and other professionals than do properties of the interpersonal communication system.

Once the Office of Education (and later the National Institute of Education) realized that ERIC, though well-established as a system, was failing to reach administrators and teachers, these agencies began to experiment with the interpersonal communication system as a means of extending the reach of print resources. In the "pilot state" experiment involving Oregon, South Carolina, and Utah, the field agents were definitely relayers of print resources, not information resources in their own right (the difference was one of role ascription, regardless of the competence of the field agents).

At the same time, a different model underlay the teacher centers movement. Most teacher centers have limited collections of print resources, and the staff member in a teacher center does not believe that his or her role is to point users toward print resources. Teacher center staff members have certain knowledge and skills that they share with users via training sessions and one-to-one work sessions.

Other dissemination programs evolving during the 1960's were based on the presumable cost-effectiveness of audiovisual media. Regional laboratories,

university research programs, state education agencies, and others began to produce films and videotapes dealing with new ideas and practices. However, arrangements for distribution and use were generally poor, and the role of media in educational dissemination is largely untested to this day.

Beyond this functional dimension that we may call "delivery," dissemination programs differ in a number of other structural and functional dimensions, some of which were outlined on the first page of this paper. In a field characterized by less innovativeness, these dimensions could be combined and recombined in hypothetical dissemination models, and the merits of each model could be inferred from the features of each dimension. In education, however, there is less need to construct hypothetical models; a large number of variations in dissemination models can actually be observed in experimental or operational status.

It is probably true, but not proven, that each dissemination model can better serve a particular group of educators than could any other model. For example, the locally established teacher center may best serve, among its potential clientele of all teachers in a district, those teachers who have a local orientation to educational improvement as a consequence of their training in a local college and/or their years of experience in the district. In contrast, a nationally affiliated information center may best serve educators who have a national orientation as a consequence of their training and experience in a number of sites across the country.

Differences among dissemination models in their fulfillment of other criteria such as timelines and comprehensiveness are more readily demonstrated. For example, in states where educational broadcasting systems have been extended to provide early morning, evening, and weekend news programs for teachers and

administrators, no printed form of dissemination can compete with such programs in timeliness or cost per audience member. Broadcasting is an effective medium for background information and many topics in continuing education, but it is limited in providing technical assistance by the necessary generality of its messages. General-purpose information centers often have the information resources that t chnical assistance requires, but the staffing plans under which they are financially viable assume brief rather than lengthy contact with each client, whereas technical assistance may entail days or even weeks of client contact.

It was reasonable for the federal government to begin its large-scale involvement in educational dissemination by (1) establishing a print archive (ERIC), (2) by providing retrieval services keyed to the archive, and (3) by sponsoring information analysis and repackaging projects also keyed to the archive. However, a decade of experimentation with dissemination models by federal, state, and local government--as well as nongovernmental organizations--now indicates that the structural and functional features of each model enable a particular dissemination objective and sometimes a particular clientele to be best served by each model. This principle, which is uncontroversial when applied to ERIC and ERIC-related services, also applies to dissemination models emphasizing interpersonal communication via field agents or teacher center staff. No dissemination model is comprehensive in the services it can provide or the clienteles it can serve. However, the emerging national configuration of dissemination models, fast changing and ad hoc though it is, is nearly comprehensive in the services that some educators receive some of the time. Still lacking in the national configuration are two elements on which comprehensiveness will be contingent: (1) an extension into all states and school districts of services

now provided only in some; and (2) an articulation, networking, and referral of services from program to program, so that clients receive continuous service in appropriate forms as they move through phases of problem-solving and the adoption of new practices.

3. The multiple contexts in which educational dissemination occurs. Early educational dissemination programs, such as ERIC and its offspring PREP, provided print-based information services that appeared to be noncontextual in the sense that, for the most part, uniform services could be, and were, provided to clients in small and large school districts, state departments of education, universities, regional laboratories and R&D centers, etc. While it is true that relatively distant programs like ERIC are less influenced by context than are close-in programs like teachers centers, the definite influence of context on the acceptance and utilization of other dissemination programs can nonetheless be seen in the demography of its users, among whom researchers, graduate students, and educational specialists of various kinds are overrepresented.

"Context" here refers to historical, political, economic, social, psychological, etc., circumstances that differentiate settings in which educators work and in which educational dissemination occurs. The effects of context on a dissemination program are far-reaching: ultimately it is the context of a program that determines its structure and function, its scope and duration, and its acceptance and utilization by clients. In addition to, or rather as a sequel to, an analysis of the services a dissemination program can best provide vis-à-vis its structure and function, an analysis of the program's relationship to its context helps to predict its effectiveness and to indicate aspects of the program in which the context is not accommodated.

In extreme cases the effects of context on dissemination are deterministic; in other cases they are probabilistic, but the conditional probabilities

approach the success-or-failure outcomes of determinism. That is, combinations of political, economic, social, and other circumstances exist in which a dissemination program can scarcely succeed; other combinations exist in which a dissemination program is unlikely to fail. Dissemination managers usually know how these circumstances stack up for or against a program. It is only a concession to the reality of the circumstances when a formalistic and restricted program is introduced in an adverse context while a favorable context encourages the dissemination manager to offer informal, open-ended services.

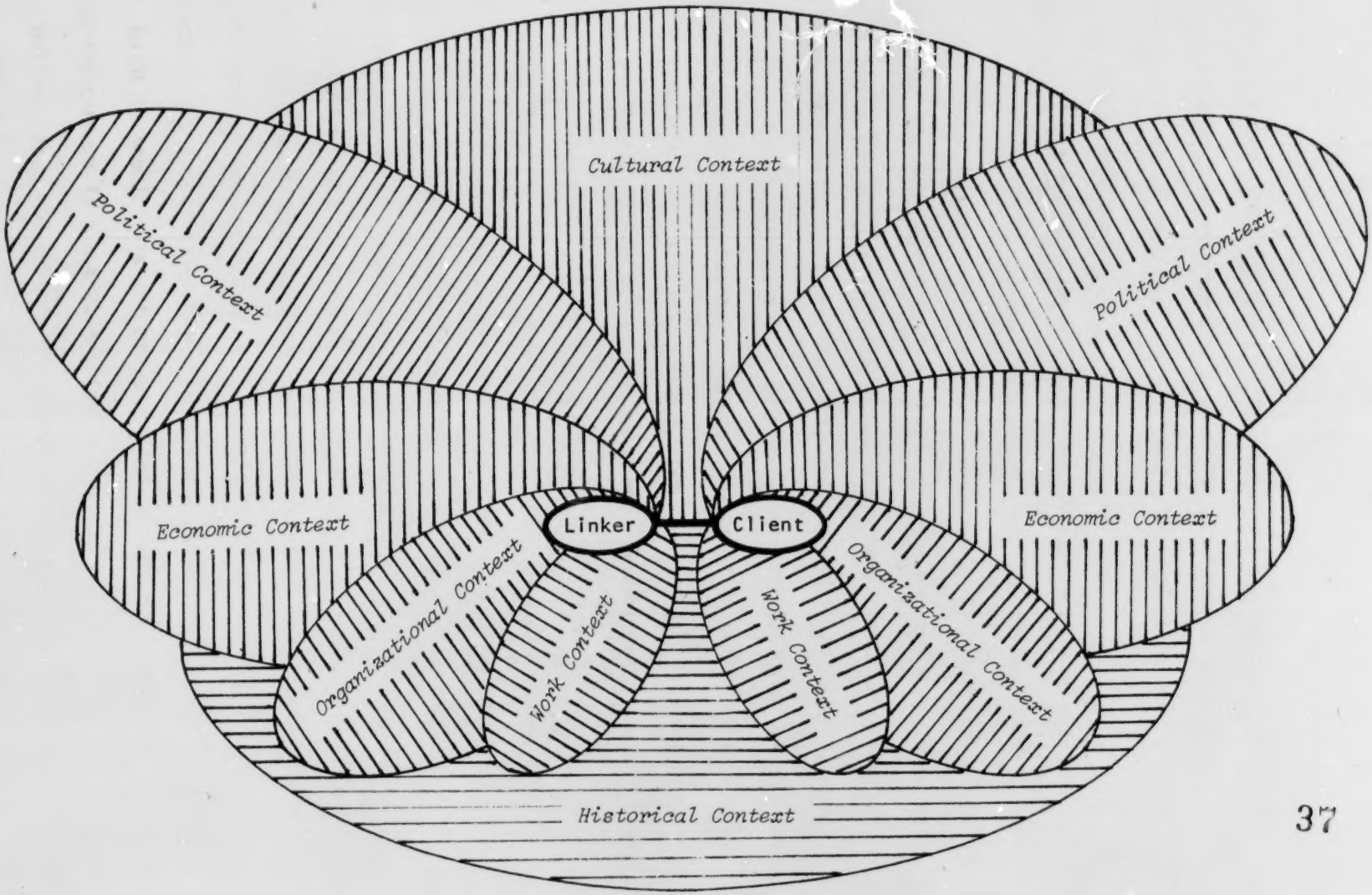
In this early period of what will eventually become the science of dissemination, the conspicuous success and failure of programs can be attributed more to context than to program planning and management. The "top forty" dissemination successes of the 1970's show us a cross-section of favorable contexts--states where the communication infrastructure linking school districts with the state department of education was established for cooperative efforts in earlier decades; consortia of districts favored by well-trained staff and the essential "venture margin" in per-pupil expenditure; urban teacher centers benefiting, ironically, from the intelligence and commitment of recently graduated teachers who have been assigned to work their way "up" from inner-city schools.

The skill of dissemination planners and managers is more evident, during this early period, in their selection and development of favorable contexts than in their salvaging of unfavorable contexts. Across the map of the United States, successful dissemination programs are distributed like experimental farms where new concepts are grown for neighborly inspection and adoption. It is not yet pertinent to ask these "farmers" whether their concepts will grow in all adverse contexts, but it is pertinent to observe that the same favorable contexts that they have developed into showcases of dissemination lie fallow elsewhere.

Figure 3 depicts the multiple contexts in which educational dissemination occurs via interpersonal communication. Different dissemination models require the contexts to be depicted differently. In this figure, it is assumed that the "linker" (e.g., field agent, teacher center staff member) and the client share the same historical and cultural contexts--that is, many of their beliefs and practices have been shaped by the same "American way of education" and by educational reform movements of the past century. However, linking agent and client are assumed to differ in other contexts that impinge on them, ranging from the immediate requirements of the work context to the more diffuse effects of the economic and political contexts. If there is an archetypal case that Figure 3 depicts, it may be a dissemination program based in a state department of education and serving clients at the district and building level. The politics and economics of state-level versus local-level educational policy may be similar or different, while the organizations themselves differ in many respects.

In summary, the multiple contexts in which educational dissemination occurs strongly affect, overall, a program's probability of success or failure. Even within a successful program--which, according to our contention, is a program operating within favorable contexts--disparities between the specific contexts of program staff and some clients become limiting circumstances in program effectiveness.

FIGURE 3: MULTIPLE CONTEXTS OF CONTACTS BETWEEN LINKING AGENTS AND CLIENTS



## III. TWO DIMENSIONS OF DIFFERENTIATION IN LINKING AGENTRY

Within the historical and other contexts discussed above, we now focus on dissemination programs that employ linking agents at the point of interaction with the client. Analysis of past and present experience in such programs indicates that two dimensions strongly differentiate the roles and functions of linking agents. One dimension involves the intra-organizational versus extra-organizational locus of linkage activity or, more simply, whether linking agents are internal or external to their client organizations.

Because dissemination programs have typically originated as ad hoc projects with temporary or at least tenuous support, linking agents have typically presented themselves to client organizations as available external resources whose lack of detailed knowledge concerning the client organizations could be compensated for by an energetic commitment of time and effort to clients' problems. Whether or not the linking agent performs useful services for a client organization under this external arrangement depends on a number of factors that are difficult to control: whether the linking agent establishes contact with the right individual or group within the client organization; whether the context permits open communication from inside the organization to the "outsider;" whether the linking agent has enough cognitive flexibility to enter into the problem frameworks of several client organizations, etc.

The internal linking agent brings a contrasting set of positive and negative role aspects to the client contact. He or she is likely to be very knowledgeable about the organization (persons recruited for linkage work tend to be communicative, other-centered, and curious about activities in the organization as a whole). On the other hand, as linkage becomes an internal staff function it becomes less of a crusade. In comparison with

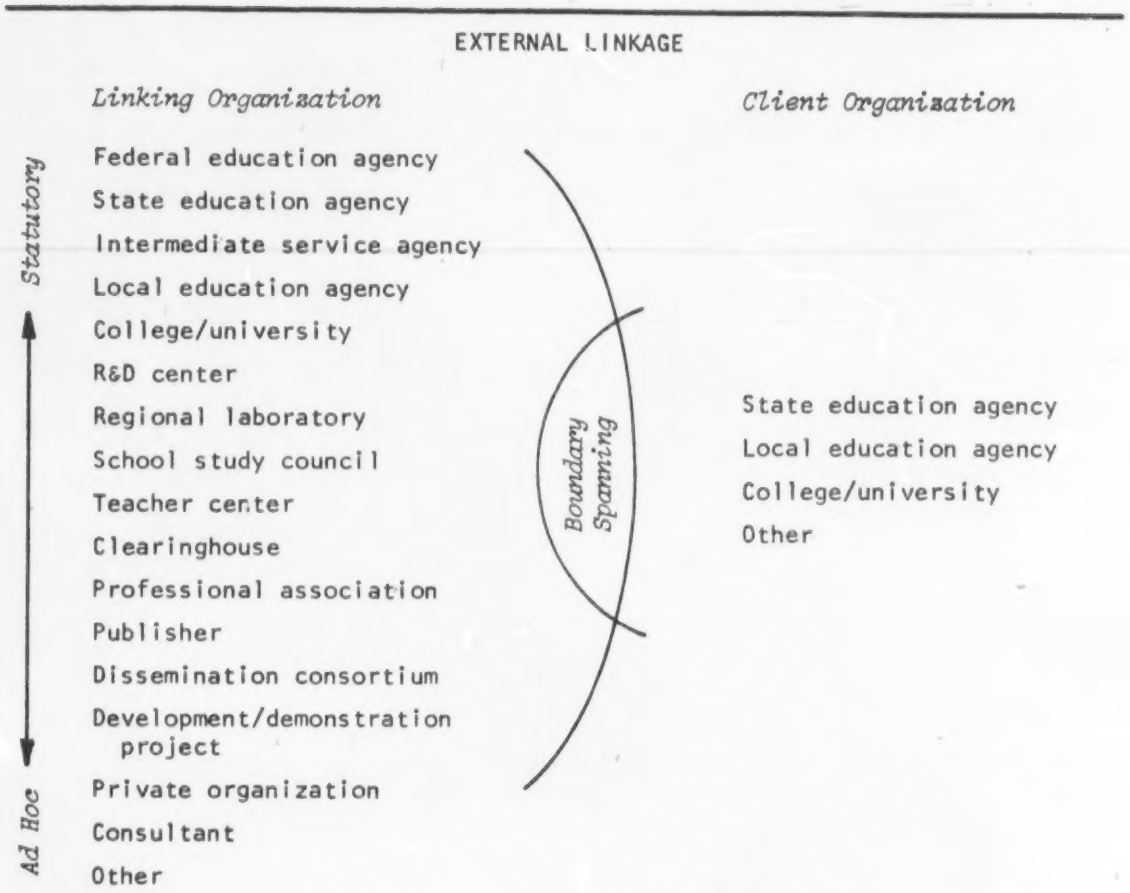
some external linking agents, the internal linking agent is less likely to move heaven and earth on behalf of clients.

What external and internal linking agents particularly have in common is a "boundary spanning" function. They bring into an organization, or into a unit within an organization, knowledge and skills that the organization or unit needs (relative to a problem or task) but lacks. The external linking agent brings knowledge and skills across organizational boundaries; the internal linking agent brings knowledge and skills across unit boundaries within the same organization. Figure 4 depicts differences as well as the common function of boundary-spanning in external versus internal linkage.

As mentioned in the introduction, an organization's capacity for self-directed change is symbolized by its staff of internal linking agents, whether their titles emphasize planning problem solving, fact finding, or other functions that are traditional in large organizations. Business and industrial corporations that have such internal capacity use external linking agents for specific rather than general requirements. Corporations may routinely derive a high percentage of decision-making or problem-solving information from staff work, then retain a consultant or "buy a study" to close gaps in the information.

In many cases, large city school districts already have the staffs of specialists required for self-directed change, and there is little that an "all-purpose" external linking agent can offer a large district. In fact, a large district is a discouraging assignment for an external linking agent in three respects: (1) the district's dynamics can be understood only after a long period of observation; (2) the district's internal capacity duplicates the general set of external linkage services; (3) progress in the district's attainment of its goals is inertia-bound and uneven.

FIGURE 4. THE FUNCTIONS COMMON TO EXTERNAL AND INTERNAL LINKERS




RATIO OF EXTERNAL TO INTERNAL LINKAGE PROJECTED OVER TIME

| | | | | | |
|---|---|---|---|---|---|
| *External* | 90% | 70% | 50% | 30% | 10% |
| *Internal* | 10% | 30% | 50% | 70% | 90% |
| | 1975 | 1980 | 1985 | 1990 | 1995 |

As projected at the bottom of Figure 4, we can expect the ratio of external to internal linkage to decline over time as school districts gain capacity to perform linkage functions internally. A residual amount of external linkage will be accounted for by the remaining number of small districts and by opportunities that will arise for external organizations to perform specialized linkage functions beyond the competence or responsibility of internal staff (e.g., some aspects of technical assistance, inservice training, assessment, etc.).

The second dimension that differentiates the roles and functions of linking agents involves the linking agent's "entitlement" to act on behalf of the client organization in different ways. Three modal linking roles result from three "entitlements" as follows:

1. RESOURCE FINDER. At the lowest level of entitlement, a linking agent serves as intermediary between the client organization and knowledge resources. The linking agent may conduct information searches or make interpersonal contacts to find answers to clients' questions. The linking agent "negotiates" clients' questions to make them answerable, but does not undertake an analysis of the client organization to determine if the right questions are being asked. Information is turned over to clients in the form of bibliographies, documents, briefing memos, etc. Only infrequently is the resource finder called upon to make presentations to clients, and the structuring of information into a set of recommendations usually goes beyond the entitlement of this role.

2. PROCESS HELPER. Given some degree of entitlement to become involved with the actual problems of the client organization, the linking agent becomes a process helper. The process in question may be technical (facilitating problem and analysis and decision making), interpersonal (facilitating group interaction and managing conflict), or both. The process helper may be a proponent of a particular approach to problem analysis, group dynamics, etc., but is neutral with respect to the substantive problem or decision.

3. SOLUTION GIVER. Given entitlement to represent one solution or set of solutions to the client organization's problems, the linking agent becomes a solution giver. The auspices under which the solution giver works with a client organization are more important than the auspices of resource

finding or process helping. The solution giver is often affiliated with an R&D organization or other product developer whose reputation becomes part of the solution giver's entitlement. Some linking agents in this role act as brokers for extensive sets of solutions, such as those catalogued in Educational Programs That Work.

The general terms in which these three roles are described derive from Piele (1976). The concept of "entitlement" is our own effort to account for marked differences in the approach of linking agents to clients and the nature of the ensuing exchange. At a simple level of analysis, the linking agent and client form a communication dyad. Each brings to the exchange a frame of reference (cognitive structure), a set of assumptions concerning the purposes of the exchange, an agenda of goals, and expectations concerning the role that the other will play. Expectations concerning the other's role are one aspect of "entitlement," as is the concept of "legitimation" from the sociology of roles.

However, entitlement to play a particular linking role is more than an ascription from the client of the moment. Entitlement travels from one client to another with the linking agent, and one of the initial tasks of the linking agent in contacting a new client is to clarify--and justify if necessary--the entitlement under which certain linking functions are to be performed. Linking functions themselves are only partly indicative of the particular role; there is functional overlap among the roles. The auspices of the linking agent's work are an even poorer indicator of the role, since employees of the same organization may act as resource finders, process helpers, and solution givers.

Thus entitlement is a useful but somewhat hazy concept that is formed from an amalgam of expectation, legitimation, auspices, functions, and another factor that is best described as the linking agent's presentation of self (Goffman, 1959). In communication dyads, expectations concerning

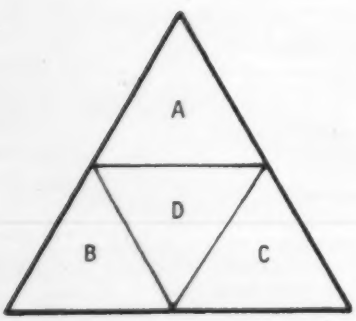
the other's role may be modified in the exchange itself. The sociological literature on emergent leadership is based on the premise that a person's presentation of self can change others' expectations concerning the role that the person can and should play. There is every reason to believe that linking agentry roles are as dynamic and changing as leadership roles and that "emergent linking agentry" is not only theoretically possible but also common in the field.

Boundaries between the three modal roles of resource finder, process helper, and solution giver are therefore permeable. At least some linking agents seek to extend their entitlement from one role to the others. Different client organizations create a need for the linking agent to perform different sets of linking functions, thereby moving from the center of one role in the direction of other roles.

In Figure 5, the three modal roles are represented as apexes of the same triangle of linking functions. If space permitted the inclusion of more detailed functions within the triangle, it would be true that regions of the triangle surrounding each apex contain functions associated with the roles of resource finding, process helping, and solution giving in their pure or narrow definition. Theoretically, a linking agent may perform any combination of functions shown in the triangle, but because juxtaposed functions call for related skills it is more likely that a linking agent will perform a set of functions within one region of the triangle only.

At the bottom of Figure 5 the triangle is divided into four regions that correspond to the three modal roles as well as to an additional unspecialized role that primarily involves communication functions alone. The possibility that a linking agent may seek to play all four roles--to become, as we shall discuss later, a "superlinker"--is also shown at the bottom of Figure 5.

FIGURE 5. THREE MODAL LINKING ROLES AND THEIR RELATIONSHIP WITH SELECTED LINKING FUNCTIONS




SPECIALIZATIONS:

A *and* B *and* C *and* D = "superlinker"

A *or* B *or* C = linking agent optimally prepared for one mode of client contact, unprepared for other modes of contact

D = generalist linking agent, "scout"

## IV. IMPLICATIONS FOR TRAINING AND SUPPORT SYSTEMS

Both persons working as linking agents and persons working with linking agents can attest to the fact that this new role in educational dissemination offers much satisfaction in the form of contact with interesting people, involvement in the processes of educational change, variety in daily work, and occasionally a significant improvement in local practice that can be traced to the linking agent's efforts. However, there are also signs that linking agents have been thrust into their new role without the training and support systems that would enable them to perform linking functions more effectively and with less stress.

Objectives for training and support systems are not ends in themselves, nor should they be formulated without consideration for more fundamental restructuring -- for example, the division of linking agentry into a larger number of more specialized and more manageable roles, for which training and support requirements would be reduced. During this first decade of experimentation with linking roles in educational dissemination, little of the inertia that later encumbers professional roles is yet present. The federal, state, and local programs in which linking roles are being established are also susceptible to change during this period. Early programmatic decisions that have created infeasible or at least inefficient assignments for linking agents can be reconsidered during this experimental period without reflecting on the program's overall merit.

In other words, a particular strategy for training and support of linking agents should be part of a larger plan for achieving particular educational dissemination objectives through the use of linking agents. Only if the larger plan can pass state-of-the-art tests of effectiveness,

efficiency, and reasonableness is the particular training/support strategy worth pursuing. At the present time, some of the larger plans -- exemplified by federal programs -- do not pass the tests in all respects. They do not build upon principles derived from earlier experiments with dissemination models. As a consequence, linking agents are sometimes sent out with tedious, ambiguous, and/or unmanageable functions to perform. Training and support systems should not reify such functions into a linking role.

The relationship of training and support systems to the larger plan that involves the use of linking agents was discussed several years ago by Paisley, Butler, Mick, et al., (1973) in an OE-NIE project to develop training resources for linking agents. Eight "desiderata" for the development of linking agentry were expressed; these are listed in Figure 6.

While it is inappropriate here to begin an analysis of which federal and other programs have responded to various points on the list, it is safe to state that the points that would directly benefit linking agents in the field have not progressed very far in federal program plans. For example, knowledge transformation (point 5), which should imply a range of printed materials varying in content and format to meet the needs of client groups, has progressed only as far as cataloguing. Lacking the range of knowledge transformation products, linking agents spend unnecessary time assembling ad hoc resources for clients.

Communication multipliers (point 4) represent the revolutionary step that still needs to be taken beyond print knowledge transformation. The little that we know about the use of audiovisual technology in educational dissemination provides no basis for projecting the future role of such technology vis-a-vis print dissemination and interpersonal communication. Only one of several shortcomings of our research on audiovisual technology for dissemination has

FIGURE 6. "DESIDERATA" OF LINKING ROLES, FUNCTIONS, TRAINING AND SUPPORT (Paisley, Butler, Mick, et al., "Development of Training Resources for Educational Extension Personnel," 1973)

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1. Experimental attitude. The extension system should be viewed as an experiment, with variation of personnel roles, kinds of products delivered, support services, etc.

2. Resources multiplier. Limited federal resources should be extended by mobilizing state and local resources, including particularly the resources of state education agencies, colleges and universities, educational R&D centers and laboratories, and exemplary program sites.

3. Personnel multiplier. Personnel in linking roles should train others to be their linkers, at least on a part-time basis. The clientele of more than two million educators cannot otherwise be served.

4. Communication multiplier. New media and communication technology should be used to increase the cost-effectiveness of extension activities during the awareness, interest, and pretrial evaluation phases of the adoption process. Audio and video cassettes, tape filmstrips, film cartridges, and local broadcasting (including ITFS and cable) facilities can be used.

5. Knowledge transformation. Transformation of the knowledge base should be a support function. The linking agent should not have to transform and package a new subset of the knowledge base for each client. Sets of "basic change alternatives" should be packaged centrally.

6. Professionalization of the linking role. Every effort should be made to create, in the extension service, a new professional specialty that can attract the best available personnel.

7. Support systems. Traditional problems of marginality and overload should be resolved by creating a new infrastructure for extension work.

8. Flexibility in training. Training programs for linking agents should be modular to permit planned or spontaneous variation of roles and functions.

been a lack of concern for the reception or playback context. We do know that it is surprisingly inconvenient for educators to receive or play back audiovisual materials in settings conducive to individual study or group discussion: the proper combination of equipment and facilities does not exist in most school buildings and district offices. We can only reason by analogy with other professions that audiovisual technology will play a major role in educational dissemination in the future. There is no factor in the content of the information or the predispositions of the audience that accounts for medicine's extensive use of audiovisual technology in the dissemination of new practices. Simply, the explanation is a simple one: hospitals are more likely than schools to have a staff seminar room that is well-equipped with audiovisual devices. These rooms create a market contingency for audiovisual producers. We can almost state as a proposition the relationshiop between reception/playback context and the eventual quantity and quality of audiovisual materials that become available.

If linking agents were provided with knowledge transformation products and communication multipliers, they would not be required to spend much of their time, as they now use, locating and assembling resources for clients. The time saved by each linking agent could be used to perform additional functions and/or to contact additional clients. (Each of these options holds different training and support implications.)

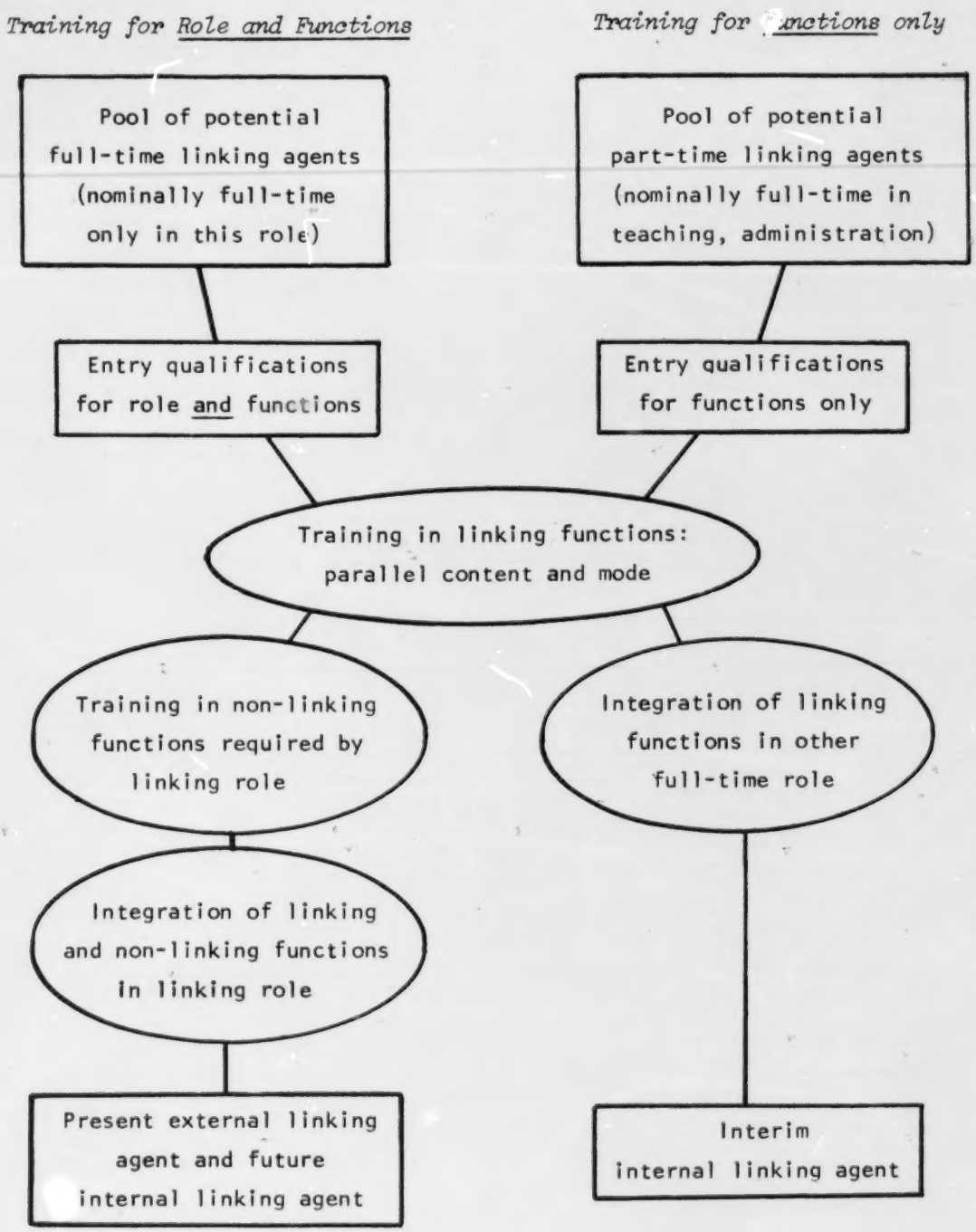
One purpose of the foregoing paragraphs is to indicate that linking roles are not strictly defined at this time -- and shouldn't be. Since the functions to be performed by linking agents will be recombined into different roles by changes in dissemination policy, support systems (e.g., for knowledge transformation), and communication technology, it is important that linking agents be trained to be flexible and be encouraged to think of themselves as participants in the invention of new systems and roles.

There is a short-term (e.g., ten-year) need for personnel-multiplying strategies which can attack the problem of a present shortage of linking agents. Linking agents are so thinly distributed throughout the nation at this time that each agent would have to contact hundreds of teachers and administrators to carry out a policy of maximum outreach. The need for a manyfold increase in the number of linking agents must be considered in planning for training and support systems. If the requirement for full-time-equivalent (FTE) linking agents is more than about three times the size of the present national cadre, then a policy that assumes only full-time agents becomes unaffordable, and the training and support systems must accommodate large numbers of part-time agents as well. Assuming that part-time agents, who are nominally full-time in other professional roles, are assigned to perform linking functions only for a fraction of their time (e.g., 20 percent), the training and support systems must deal with many more persons in order to increase the national cadre of linking agents to its FTE requirement.

There is a shortage of genuinely qualified linkage trainers, such that separate training for full-time and part-time agents seems infeasible even though one group needs to be trained in the linking role and functions while the other group, which will continue to work in such professional roles as teaching and administration, needs to be trained in linking functions only. Figure 7 illustrates how the two streams of personnel may converge for training in linking functions, then separate for additional training in which the linking functions are integrated into their different roles.

What can be said about the content of the training in linking functions? Does the unsettled character of linking agentry call for "once over lightly" training in all linking functions for every trainee? We hope not. Such training would be a waste of scarce training resources. A more attractive

FIGURE 7. TRAINING FOR LINKING AS A ROLE AND/OR A FUNCTION


Training for Role and Functions
Training for Functions only
Pool of potential full-time linking agents (nominally full-time only in this role)
Pool of potential part-time linking agents (nominally full-time in teaching, administration)
Entry qualifications for role and functions
Entry qualifications for functions only
Training in linking functions: parallel content and mode
Training in non-linking functions required by linking role
Integration of linking functions in other full-time role
Integration of linking and non-linking functions in linking role
Present external linking agent and future internal linking agent
Interim internal linking agent

alternative is for linking agents first to be trained in provisional specialties, then trained in the linking functions required by their specialties. Although a significant shift in the linking agent's workload might later require additional training in another specialty, this strategy would provide trainees with better instruction in the skills they will actually need.

Specialization cannot occur unless the dissemination program creates an infrastructure that brings other specialized personnel to the support of the linking agent when needed. Linking roles can be specialized only if they are articulated through a process of differentiating functions into coherent and trainable clusters, each of which will then be assumed by a member of the linking organization who will assist other members when his or her special functions are needed. Figure 8, outlines a set of roles for a resource-oriented linkage program; similar sets of roles can be outlined for programs that emphasize process helping and solution giving.

We are not beginning from zero in the process of differentiating linking roles. Federal dissemination programs such as the National Diffusion Network and the Capacity Building and R&D Utilization Programs typically have at least two complementary roles, as exemplified by developer-demonstrators and state facilitators in the National Diffusion Network. What is not yet common, however, is a differentiation of roles within a single team, as in the case of a team of linking agents who work in the same state department of education or intermediate agency office.

The relationship of training to support requirements is itself complex and changes over time. It is instructive to observe, for instance, that in the field of medical education the growth of knowledge led to the near-eclipse of general practitioner training in the 1950's. In the 1970's, with improved

FIGURE 8 ARTICULATION OF LINKING ROLES THROUGH DIFFERENTIATION OF FUNCTIONS

The alternative to be "Superlinker" is articulation of roles through differentiation of functions. For example, in a resource-oriented linkage program, each of the following roles is performable and trainable:

PROJECT DIRECTOR

- Project representation and institutionalization (6 tasks)
- Project administration (2 tasks)

PROJECT MANAGER

- General management (3 tasks)
- Project representation (2 tasks)
- Daily project supervision (3 tasks)

PRINT RESOURCES SPECIALIST

- Establishment and maintenance of collection (2 tasks)
- Performance of search-related activities (5 tasks)

HUMAN RESOURCES SPECIALIST

- Development and maintenance of human resources file (3 tasks)
- Liaison between consultants and schools (4 tasks)
- Liaison between schools and exemplary sites (3 tasks)
- Communication and feedback (2 tasks)

EDITOR/PUBLICATIONS SPECIALIST*

MEDIA SPECIALIST*

FIELD AGENT

- Linkage role (5 tasks)
- Management of field-based operations (2 tasks)
- Coordination of part-time agents (2 tasks)

These seven roles were described in Paisley, Butler, Mick, et al., Development of Training Resources for Educational Extension Personnel, 1973. *Task analysis was not undertaken for these roles.

support systems for general practice and less open-ended responsibility for all patient conditions, training of "family practitioners" has returned and is popular among students. In its rebirth, however, general practice is truly a specialty, according to the criterion that specialists adhere to the boundaries of their specialties.

With improved support systems, knowledge transformation products, and communication multipliers, it may some day be feasible to train and employ general linking agents, despite a present need to make linking roles manageable through specialization. In the future, the general linking agent will be a specialist in the sense that the functions he or she does not perform will be assumed by support systems.

# V. BIBLIOGRAPHY

Butler, Matilda, W. Paisley, et al. Communication for Change in Education: Educational Linkage Programs in the 1970's. Stanford, CA: Stanford University, Institute for Communication Research, 1975.

Carlson, Robert O. The Adoption of Educational Innovations. Eugene, OR: University of Oregon, Center for the Advanced Study of Educational Administration, 1965.

Coleman, James S., et al. Equality of Educational Opportunity. Washington: Government Printing Office, 1966.

Goffman, Erving. The Presentation of Self in Everyday Life. Garden City, NY: Doubleday-Anchor, 1959.

McLuhan, Marshall. Understanding Media: The Extensions of Man. New York: McGraw-Hill, 1966.

Nash, Nicholas, and Jack Culbertson. Linking Processes in Educational Improvement. Columbus, OH: University Council for Educational Administration, 1977.

Office of Education. Educational Research and Development in the United States. Washington: Government Printing Office, 1969.

Paisley, William, Matilda Butler, Colin Mick, et al. Developing Training Materials for Educational Extension Services Personnel. Stanford, CA: Stanford University, Institute for Communication Research, 1973.

Paisley, William, et al. Developing a Sensing Network for Information Needs in Education. Stanford, CA: Stanford University, Institute for Communication Research, 1972.

Piele, Philip. Review and Analysis of the Role, Activities, and Training of Educational Linking Agents. Eugene, OR: University of Oregon, ERIC Clearinghouse on Educational Management, 1975.

Price, Derek. Little Science, Big Science. New York: Columbia University Press, 1963.

Rogers, Everett M., J. D. Eveland, and Alden S. Bean. Extending the Agricultural Extension Model. Stanford, CA: Stanford University, Institute for Communication Research, 1976.

Rogers, Everett M., with F. Floyd Shoemaker. Communication of Innovations: A Cross-Cultural Approach. New York: Free Press, 1971.